PHYSICAL ENVIRONMENT
RTE 31 – GATES – OGDEN
STUDY AREA

MONROE CO.
REGION 4

SOIL MECHANICS BUREAU
NEW YORK STATE
DEPARTMENT OF TRANSPORTATION
RAYMOND T. SCHULER, Commissioner

PHYSICAL ENVIRONMENT

RELOCATION

RTE.31 GATES-OGDEN STUDY AREA

MONROE COUNTY

REGION 4

L.H. MOORE
SOIL MECHANICS BUREAU

ALBANY, NEW YORK

MARCH 8
MAY, 1977

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MEMORANDUM
DEPARTMENT OF TRANSPORTATION

DATE May 2, 1977

SUBJECT PHYSICAL ENVIRONMENT REPORT
ROUTE 31
PIN 4037-15-121

FROM L. H. Moore, Soil Mechanics Bureau, Room 102, Bldg. 7
By: R. H. Burns
TO A. J. Kopczynski, Regional Director, Region 4

Attention: R. Tylock, Regional Planning Engineer

The Soil Survey and Mapping Unit of the Soil Mechanics Bureau has prepared a Physical Environment Report for the Route 31 project in Monroe County. This report was prepared for possible inclusion in the environmental study being prepared under contract by the Polytechnic Institute.

This report emphasizes the physical base as expressed by surface and subsurface soil, bedrock and water parameters. Of the meteorological aspects of the environment only temperature extremes and average and average monthly precipitation data are presented.

We will be pleased to discuss any aspects of this report with the regional planning personnel.

RHB:EAF:MF

LIMITATIONS OF INFORMATION

GENERAL STATEMENT

The information contained on the included maps is preliminary and general and as such the maps must be considered as generalizations. The boundaries of the units depicted on the maps represent general indications of where a change occurs. In most instances the changes are transitional and not abrupt as shown on the maps. Some small inclusions of a differing unit may occur within areas mapped as a single unit.

The source data used for statements and interpretations often was specifically intended for purposes other than engineering evaluation. The evaluation of this data together with previous experience and field reconnaissance contribute significantly to the final interpretations. Where information was obtained directly from the source material without interpretation on the part of the Soil Mechanics Bureau the source material will be cited. Inferred or interpreted information will be indicated as such along with the data base source.

THE INFORMATION IN THIS REPORT IS PRESENTED FOR STATE PLANNING AND DESIGN PURPOSES. IT IS MADE AVAILABLE TO INTERESTED PARTIES ONLY THAT THEY MAY HAVE ACCESS TO IDENTICAL INFORMATION AVAILABLE TO THE STATE. IT IS PRESENTED IN GOOD FAITH, BUT IS NOT INTENDED AS A SUBSTITUTE FOR INVESTIGATION, INTERPRETATION OR JUDGMENT OF THOSE INTERESTED PARTIES.

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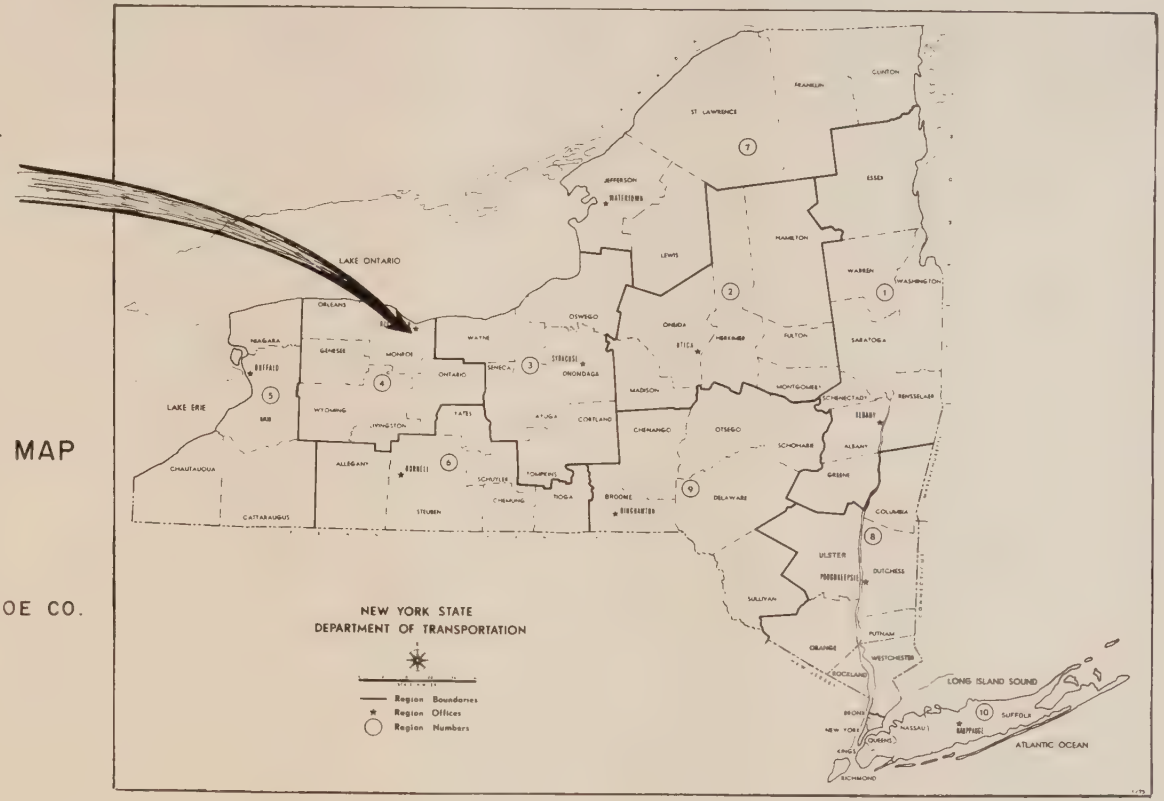
LOCATION OF THIS PROJECT



PROJECT LOCATION MAP
ROUTE 31
GATES - OGDEN
STUDY AREA

REGION 4 MONROE CO.

N

APPROX. SCALE
1" = 3050 FEET

PROJECT STUDY AREA MAP
ROUTE 31 GATES - OGDEN

REGION 4 MONROE CO.

Dng. No. 1794A

INTRODUCTION

Scope

This physical environment report is produced to provide information concerning the surface and subsurface soil, bedrock and water conditions of the study area. It presents data useful in both the planning and design phases of proposed transportation facilities. It also offers information helpful in the preparation of environmental impact studies. This report may be used as a reference during all stages of transportation facility development.

Method of Investigation

The formulization of this report is based on a general pattern which utilizes many sources of information. First, a literature search is made of publications concerning the study area. These include: topographic maps, soil surveys, geologic reports, ground water reports, hydrologic and climatic data, and general publications. From this data preliminary maps are prepared at a scale of 1:15,840 (4 inches represent 1 mile). These are either 7½ minute United States Geological Survey topographic maps or NYSDOT planimetric maps enlarged to the proper scale.

This data is broadly divided into three working groups: physical aspects, soil factors and water factors. In addition to all sources mentioned a study of aerial photographs of the project area is made to refine boundaries and to add small areas not previously detected. Bureau files are searched for previous projects in the subject area and subsurface data and any difficulties on the project are noted. Finally a field evaluation and inspection of the subject area is made.

AREA DESCRIPTION

Location, Culture and Climate

The subject area lies in the west central portion of New York and is located wholly in Monroe County. Included in the area are parts of the towns of Ogden and Gates as well as a small portion of the Village of Spencerport. The eastern portion of the subject area is chiefly a suburb of Rochester while the western portion is farmed as well as being a suburb of both Rochester and Spencerport.

The subject area has a developed system of town, county and state highways and streets. The entire area is served by a minor arterial system while the eastern half also serves as the present terminus of a principal arterial. The NYS Barge Canal passes just to the north of the subject area. The surrounding area is served by rail, the former Penn-Central now Conrail system. Air transportation facilities are available at the Rochester-Monroe County Airport.

The climate is described as humid-continental. Summers are warm, winters are quite long and cold with frequent periods of stormy, unsettled weather. Precipitation is rather evenly distributed throughout the year. The mean average temperature in the area is 48.0° F, July being the warmest month (72.2°F) and February the coldest (25.0° F).

Generalized Geologic Setting

Physiography and Topography

The project area lies in the physiographic province known as the Erie-Ontario Lowlands. The area itself is south of the ridge marking the beach line of ancient Lake Iroquois. It is characterized as being almost flat with a few prominent hills. The Lockport dolomite forms an escarpment in the northeastern part of the project area. The highest elevation of 665 feet occurs on Woodchuck Hill, while the lowest elevation of 520 feet is found in the northeastern portion.

Unconsolidated Deposits

Practically all of the unconsolidated deposits are directly or indirectly the result of glacial action which occurred during the last ice stage. The glacier modified the pre-existing topography and deposited material known as glacial till. As the glacier retreated it formed a series of lakes trapping water between the retreating ice front and the higher topography to the south. Coupled with this retreat were several intermittent advances and stagnations causing the deposition of such outwash and ice-contact deposits as the Pinnacle Kame-Moraine, of which Woodchuck Hill is a western extension. Lacustrine deposits include clay bottom sediments and fine sand beach deposits.

After the recession of the lake waters geological weathering and erosion have taken place. The drainage net developed and these streams formed flood plains along their courses. Ponds and poorly drained areas have filled with vegetation and soil forming swamps. For a more detailed geologic history see the references included with the Terrain Unit Map.

Bedrock

The bedrock geology of the project area is quite simple. It consists of the Clinton Group, Rochester Shale and Lockport Dolomite, all of Silurian age and dipping to the south an average of 60 feet per mile.

Drainage

All drainage in the project area is ultimately into Lake Ontario. The northern half of the area is drained, by means of several small streams, directly into the lake. The southern drainage is carried by Little Black Creek into the Genesee River and then into the lake.

INTERACTIONS OF SOIL, WATER AND TRANSPORTATION FACILITIES

Transportation systems affect the relationships between soil and water in many aspects. Surface and subsurface effects may be generalized as follows:

1) Quantity and concentration of runoff - By removing existing vegetative cover, introducing steeper slopes and increasing impervious areas runoff characteristics may be dramatically altered. Care should be taken to assure adequacy of structures downstream to pass increased quantities of water.

2) Closed drainage systems - Care should be taken to prevent introducing volumes of runoff into existing storm drainage which would exceed design capacity. If the proposed facility does contribute significant additional volume, adequate provision must be made to retain or detain excessive flow and to assure separation from sanitary sewers.

3) Flood controls and flood plains - Transportation structures may cause flooding or ponding by increasing runoff, encroaching on flood plains or limiting channel width or height. These effects can be mitigated by proper engineering design, ensuring adequate floodway area, flood storage area and channel dimensions. Backwater effects must be kept within permissible limits.

4) Groundwater - Groundwater is the water which fills void spaces in the soil and bedrock at or beneath the water table and moves by gravitational forces. It is restrained by the resistance to flow of the soil or rock openings through which it passes. The ground water table is not a fixed surface but undulates and tends to parallel the configuration of the surface topography. Climatic and usage factors also influence the groundwater surface. Groundwater also occurs in artesian systems where it is confined by surrounding beds and is under pressure. The depth to the artesian aquifer is independent of surface features.

   A cut works similar to a surface drain. The depth of the cut approximates the depth of the drain and consequently the water table elevation will be lowered in its vicinity depending on several factors. The more important of these are depth and width of cut, pre-existing water table configuration, permeability of soil and bedrock deposits, topographic configuration and any surface water bodies in the immediate vicinity. A very broad rule of thumb is that a cut will affect the water table for a lateral distance equal to four times the distance the water table is lowered. An artesian system can be affected either by piercing the impervious confining layer causing a leak or in extreme cases the aquifer itself can be compressed by the weight of an overlying structure.

5) Water Quality - Construction and maintenance of transportation facilities may affect water quality. Control of accelerated erosion and sedimentation during construction should be considered in relation to the potential damages to water bodies or man-made facilities which may occur. Maintenance activities are mainly concerned with deicing chemicals. In streams the dilution which occurs is usually sufficient to overcome the problem. However, in standing bodies of water, as well as groundwater, long term effects must be evaluated. Potential sites for accidental spills from vehicles should also be evaluated. Geometrics, sun and shadow relationships and types of cargo usually hauled are aspects for evaluation.

6) Areas of Wetlands - Highway construction may cause changes in drainage patterns in wet areas. Every effort should be made to insure natural flow and access between portions of wet areas traversed by highways. This may be accomplished by conduits or structures permitting free flow and contact from natural water sources to areas of water utilization and dispersal. Also care should be taken to maintain natural groundwater elevations similar to those existing prior to construction of a facility.

HYPSOGRAPHIC MAP

The purpose of the Hypsographic Map is to present an overview of the project area which indicates the degree of relief encountered.

The mapping is divided into elevation bands of 25 foot interval. The scale of the mapping is 4 inches equal 1 mile. The lineal distance between bands is an indication of the slope encountered in the project area.

Elevations within the project area vary from 520 feet to 665 feet. The lower elevations occur in the extreme northeastern portion of the project area. The highest elevations are found on Woodchuck Hill and on the unnamed hill to the southwest of Woodchuck Hill.

The Hypsographic map has been developed from the standard 7.5 Minute Series Topographic Map, produced by the U.S. Geological Survey.

LEGEND

FEET ABOVE SEA LEVEL

1	GREATER THAN 625
2	600 - 625
3	575 - 600
4	550 - 575
5	LESS THAN 550

N

0 1000 2000 3000 FT

CONTOUR INTERVAL 5 FEET

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUREAU OF SOIL MECHANICS

HYPSOGRAPHIC MAP

RTE 31 GATES - OGDEN
STUDY AREA

APPROVED 28 Apr 1977

DISTRICT NO 4
COUNTY MONROE
DRAWING NO 4 [illegible]

SLOPE MAP

The purpose of the slope map is to present an overview of the project area which delineates areas of common slope from level to steep. Four groups have been designated. They are those with 0-3% slopes, 3 to 8% slopes, 8-15% slopes and those over 15% slopes. Most of this mapping indicates average slope ranges and assumes essentially uniform slopes, which may or may not be the case. A fifth group includes pits and quarries for which up to date information is unavailable.

Percent slope is sometimes expressed as gradient which is defined as change in elevation per unit length. This mapping is based on data supplied by the Soil Conservation Service field offices which indicate the slope phase or class of the soils in the project area.

REFERENCES

See Generalized Terrain Unit Map References.

Soil Survey Staff, 1951, Soil Survey Manual, Ag. Handbook No. 18, pp. 290-293, Washington.

MAP UNIT EXPLANATION

Slope Designation	Range of Slope Percentages
1. Level to Gently Sloping	0-3
2. Gently Sloping to Mod. Sloping	3-8
3. Mod. Sloping to Mod. Steep	8-15
4. Mod. Steep to Steep	15 and up
5. Pits and Quarries	

1 LEVEL TO GENTLY SLOPING
2 GENTLY SLOPING TO MODERATELY SLOPING
3 MODERATELY SLOPING TO MODERATELY STEEP
4 MODERATELY STEEP TO STEEP
5 PITS AND QUARRIES

N

0 1000 2000 3000 FT.

CONTOUR INTERVAL 5 FEET

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUREAU OF SOIL MECHANICS

SLOPE MAP
RTE 31 GATES - OGDEN
STUDY AREA

APPROVED 28 Apr 1977
DIRECTOR

DISTRICT NO 4
COUNTY MONROE
DRAWING NO 4 SM 1794

GENERALIZED TERRAIN UNIT MAP

A system of landform-depositional process map units has been developed which uses the landform-parent material concept (Bennett and McAlpin, 1948). This concept is based on the fact that under similar conditions of climate, topography, time and biologic agents a given parent material will produce a soil with significantly similar engineering properties. Parent material refers to either weathered rock, unconsolidated sediments or transportated material. These mapped units are termed terrain units.

By utilizing the Generalized Terrain Map, in conjunction with the General Terrain Unit Characteristics Table and the General Earth Engineering Considerations Table, the general soil character and potential engineering performance can be determined.

LIMITATIONS OF INFORMATION

The boundaries of the terrain units shown (on the accompanying map) are generalized. In many instances the changes with respect to terrain units are transitional and not abrupt as depicted on the map. Some small inclusions of different terrain units may occur within areas mapped as a single unit. The determination of terrain units is based on the following:

A) A review of existing literature of the subject area including an earth engineering interpretation of the geologic and pedologic maps of the area.

B) An earth engineering interpretation of aerial photographs of the subject area.

C) A field surface reconnaissance of the area.

D) A correlation of past engineering and construction experience in the area.

MAP UNIT EXPLANATION

See General Terrain Characteristics Table.

REFERENCES

Bennett, Earl F. and George W. McAlpin, 1948, An engineering grouping of New York State soils. In HRB Bull. 13, pp 55-65.

Heffner, R. L. and S. D. Goodman, 1973, Soil Survey of Monroe Co., N. Y. U. S. Dept. of Agriculture Soil Conservation Service, Washington.

Planning Staff of Monroe Co. Planning Council, 1971, Planning Inventory, Town of Gates, Monroe Co., N. Y.

Planning Staff of Monroe Co. Planning Council, 1971, Planning Inventory, Town of Ogden, Monroe Co., N. Y.

Soil Conservation Service, U. S. Department of Agriculture open file soil survey maps, Monroe Co., Rochester.

Way, Douglas S., 1973, Terrain Analysis, 392 p., Dowden, Hutchinson and Ross, Inc., Stroudsburg, Pa.

Weeden, Harmer A., 1962, Soil mapping for highway engineers, Engr. Res. Bull. B-82, 141 p, The Pennsylvania State University, University Park, Pa.

1	THICK TILL
2	THIN TILL
2PD	THIN TILL - POORLY DRAINED
3	MORAINIC TILL
5	OUTWASH DEPOSITS
6	LACUSTRINE SHORE DEPOSITS
6/1	LACUSTRINE SHORE DEPOSITS OVER THICK TILL
6PD	LACUSTRINE SHORE DEPOSITS-POORLY DRAINED
7	LACUSTRINE BOTTOM SEDIMENTS
7PD	LACUSTRINE BOTTOM SEDIMENTS-POORLY DRAINED
10	RECENT ALLUVIAL DEPOSITS
10PD	RECENT ALLUVIAL DEPOSITS-POORLY DRAINED
13	ORGANIC DEPOSITS
6/7	LACUSTRINE SHORE DEPOSITS OVER LACUSTRINE BOTTOM SEDIMENTS

N

0 1000 2000 3000 FT.

CONTOUR INTERVAL 5 FEET

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUREAU OF SOIL MECHANICS

GENERALIZED TERRAIN UNIT MAP RTE 31 GATES - OGDEN STUDY AREA

APPROVED 28 Apr 1977

DISTRICT NO 4
COUNTY MONROE
DRAWING NO. 4 SM 1794 D

GENERAL TERRAIN UNIT CHARACTERISTICS
RTE. 31 GATES-OGDEN STUDY AREA

MAP SYMBOL	TERRAIN UNIT	MODE OF ORIGIN	LANDFORMS	COMMON TOPOGRAPHIC POSITION	PARTICLE SIZE AND DISTRIB.	RELATIVE PERM.	REMARKS
1	THICK TILL	SEDIMENTS PICKED UP, TRANSPORTED, MIXED AND DEPOSITED BY GLACIAL ICE: MINIMAL WATER TRANSPORT: COMPACTION BY OVERRIDING ICE OR SETTLING DURING DEWATERING.	LONG, SIMPLE SLOPES: STEEP TO LEVEL SURFACES.	UPLANDS; FLANKS AND TOPS OF HILLS.	CLAY TO BOULDERS. GENERALLY MORE THAN 20% + 3" FRAGMENTS GENERALLY UNSORTED AND UNSTRATIFIED: MINOR WATER SORTED POCKETS.	SLOW	HARD LAYER NEAR SURFACE MAY PREVENT DOWNWARD MOVEMENT OF WATER.
2	THIN TILL	SEDIMENTS PICKED UP, TRANSPORTED, MIXED, AND DEPOSITED BY GLACIAL ICE; MINIMAL WATER TRANSPORT; COMPACTION BY OVERRIDING ICE OR SETTLING; WAVE ACTION ALONG SHORES.	MODERATELY STEEP TO STEEP VALLEY SIDES: HILLTOPS	STEEPER UPLAND SLOPES; INCISED DRAINAGE WAYS.	CLAY TO BOULDERS. GENERALLY MORE THAN 20% + 3" FRAGMENTS GENERALLY UNSORTED AND UNSTRATIFIED: MINOR WATER-SORTED POCKETS.	SLOW	DEPTH TO BEDROCK LESS THAN FOUR FEET; NUMEROUS ROCK FRAGMENTS NEAR BEDROCK SURFACE.
3	MORAINIC TILL	SEDIMENTS PICKED UP, TRANSPORTED, MIXED, AND DEPOSITED BY GLACIAL ICE; MINIMAL WATER TRANSPORT; COMPACTION BY OVERRIDING ICE OR SETTLING.	STEEP SIDED HILLS AND RIDGES.	STEEPER SIDE OF RIDGE MORAINES.	CLAY TO BOULDERS. GENERALLY MORE THAN 20% + 3" FRAGMENTS GENERALLY UNSORTED AND UNSTRATIFIED: MINOR WATER-SORTED POCKETS.	SLOW	ROLLING SOILS; CONVEX SLOPES 15% -25% GRADIENTS.
5	OUTWASH DEPOSITS	SEDIMENTS TRANSPORTED BY MELTWATER AWAY FROM ICE MASS.	FLAT TO GENTLY UNDULATING TERRACES.	LOWER VALLEY WALLS AND FLOORS.	SILT TO COBBLES, MOSTLY SAND AND GRAVEL. WELL SORTED, MASSIVE, HORIZONTAL STRATIFICATION WITH SOME BEDDING.	MODERATE TO RAPID.	MAY HAVE HIGH WATER TABLE. NON PLASTIC.
6	LACUSTRINE SHORE DEPOSITS	SEDIMENTS TRANSPORTED BY WATER-COURSES FLOWING INTO GLACIAL LAKES AND SETTLING; WAVE ACTION ALONG SHORES.	DELTAS, BEACHES, BARS; LOW RIDGES; BERMS; FLAT TO GENTLY UNDULATING PLAINS.	EDGES OF VALLEY FLOOR, EDGES OF LOWLANDS.	SILT TO COBBLES, MOSTLY FINE SAND AND SILT, LITTLE CLAY. WELL SORTED BEDS; DISTINCT LEVEL OF SLOPING STRATIFICATION.	MODERATE TO RAPID.	MAY BE UNDERLAIN BY LACUSTRINE CLAYS.
7	LACUSTRINE BOTTOM SEDIMENTS	SEDIMENTS DEPOSITED IN DEEP, QUIET WATER OF GLACIAL LAKES.	FLAT TO GENTLY UNDULATING PLAINS.	VALLEY WALLS: VALLEY FLOORS; LOW LANDS	CLAY TO FINE SAND; MOSTLY SILT AND CLAY. WELL-SORTED BEDS; NEARLY HORIZONTAL, DISTINCT STRATIFICATION.	VERY SLOW VERTICALLY; SLOW HORIZONTALLY	LAMINATIONS COMMONLY CALLED VARVES. HIGHLY PLASTIC.
10	RECENT ALLUVIAL DEPOSITS	SEDIMENTS DEPOSITED BY FLOODWATERS	FLOODPLAINS SUBJECT TO OVERFLOW.	ALONG WATERCOURSES.	CLAY TO COBBLES; MOSTLY SAND AND SILT; ORGANIC SURFACE. WELL-SORTED BEDS; WEAK STRATIFICATION. FINER TEXTURES FARTHER FROM WATERCOURSE.	VARIABLE; HIGH WATER TABLE.	USUALLY UNDERLAIN BY ADJACENT DEPOSITS. MAY BE PLASTIC.

GENERAL TERRAIN UNIT CHARACTERISTICS
RTE. 31 GATES-OGDEN STUDY AREA

MAP SYMBOL	TERRAIN UNIT	MODE OF ORIGIN	LANDFORMS	COMMON TOPOGRAPHIC POSITION	PARTICLE SIZE AND DISTRIB.	RELATIVE PERM.	REMARKS
13	ORGANIC DEPOSITS	ACCUMULATION OF ORGANIC AND INORGANIC MATERIAL IN BODY OF WATER.	DEPRESSIONS	ALONG WATER-COURSES; HEAD-WATERS OF UPLAND STREAMS; VALLEY FLOOR DEPRESSIONS.	CLAY TO FINE SAND; ORGANIC MATTER; UNSORTED; IRREGULAR STRATIFICATION.	VARIABLE; HIGH WATER TABLE.	VARIABLE DEPTH TO MINERAL SOIL; GENERALLY LESS THAN 3 FEET. PLASTICITY VARIES.
6/1	LACUSTRINE SHORE DEPOSITS OVER DEEP TILL	SEE INDIVIDUAL EXPLANATIONS			MOSTLY FINE SAND AND SILT OVER DEEP TILL.	SLOW	
6/7	LACUSTRINE SHORE DEPOSITS OVER LACUSTRINE BOTTOM SEDIMENTS	SEE INDIVIDUAL EXPLANATIONS			MOSTLY SANDY DEPOSITS UNDERLAIN BY LACUSTRINE CLAY	MODERATE	DEPTH TO CLAY 20-40 INCHES.
2 PD 6 PD 7 PD 10 PD	POORLY DRAINED				THESE ARE POORLY DRAINED PHASES OF THE ABOVE TERRAIN UNITS. THEY ARE SIMILAR IN CHARACTER TO THE DESCRIBED UNIT EXCEPT THAT THE SOIL REMAINS WET FOR A LARGE PART OF THE TIME. THESE SOILS ARE USUALLY WATER LOGGED DURING LATE FALL, WINTER AND EARLY SPRING. THE WATER TABLE REMAINS NEAR THE SURFACE EXCEPT DURING THE USUALLY WARM, DRY MONTHS.		

GENERAL EARTH ENGINEERING CONSIDERATIONS
RTE. 31 GATES-OGDEN STUDY AREA

MAP SYMBOL	TERRAIN UNIT	HIGHWAY LOCATION	CUTSLOPE CONDITIONS	SUBGRADE CONDITIONS	SOURCE OF MATERIALS
1	THICK TILL	NOT CRITICAL	POSSIBILITY OF SURFACE SEEPAGE AND SLOUGHING. MAY REQUIRE SLOPE PROTECTION.	GENERALLY GOOD	COMMON BORROW.
2	THIN TILL	NOT CRITICAL	ROCK OR EARTH-ROCK COMBINATIONS.	ROCK MAY BE ENCOUNTERED. TRANSITION SECTIONS NECESSARY.	COMMON BORROW. LOW SOIL YIELD.
2PD	THIN TILL POORLY DRAINED	GENERALLY NOT CRITICAL. CUTS MAY BE WET.	ROCK OR EARTH-ROCK COMBINATIONS. SEEPAGE PROBABLE.	ROCK MAY BE ENCOUNTERED. TRANSITION SECTIONS NECESSARY. MAY BE WET.	COMMON BORROW. LOW SOIL YIELD. MAY BE WET.
3	MORAINIC TILL	TOPOGRAPHY INDICATES LONGITUDINAL AND TRANSVERSE CUTS AND FILLS.	SOME SLOUGHING AND SEEPAGE. MAY REQUIRE SLOPE PROTECTION.	GENERALLY GOOD.	COMMON BORROW.
5	OUTWASH DEPOSITS	GENERALLY NOT CRITICAL. EMBANKMENTS OVER 25 FEET HIGH MAY BE UNSTABLE.	GENERALLY GOOD. POSITIVE DRAINAGE MAY BE REQUIRED TO PREVENT EROSION.	GENERALLY GOOD. MAY BE NON-UNIFORM.	COMMON BORROW AND GRANULAR MATERIALS.
6	LACUSTRINE SHORE DEPOSITS	EMBANKMENTS OVER 25 FEET HIGH PROBABLY UNSTABLE. CUTS WILL BE TROUBLESOME.	GENERALLY POOR. PROBLEMS OF EROSION OF FINE-GRAINED MATERIALS. MAY REQUIRE SLOPE PROTECTION OR FLATTENING FOR STABILITY.	GENERALLY SOFT, WET MATERIALS WITH DEPTH. POSSIBLE TRAFFICABILITY DIFFICULTIES. CONSIDER UNDER CUT.	COMMON BORROW AND POSSIBLY GRANULAR MATERIALS. MAY BE WET.
6PD	LACUSTRINE SHORE DEPOSITS POORLY DRAINED.	EMBANKMENTS OVER 25 FEET HIGH PROBABLY UNSTABLE. CUTS WILL BE TROUBLESOME.	GENERALLY POOR, PROBLEMS OF FINE GRAINED FLOWING MATERIALS. WILL REQUIRE SLOPE PROTECTION AND FLATTENING FOR STABILITY.	WET, SOFT, FINE GRAINED MATERIALS. TRAFFICABILITY DIFFICULTIES. CONSIDER UNDERCUT.	COMMON BORROW. WILL BE WET.
7	LACUSTRINE BOTTOM SEDIMENTS	EMBANKMENTS OVER 25 FEET HIGH PROBABLY UNSTABLE. CUTS WILL BE TROUBLESOME.	GENERALLY POOR, PROBLEMS OF FINE GRAINED FLOWING MATERIALS. MAY REQUIRE SLOPE PROTECTION AND FLATTENING FOR STABILITY.	GENERALLY SOFT, WET, FINE GRAINED MATERIALS. TRAFFICABILITY DIFFICULTIES POSSIBLE. CONSIDER UNDER CUT.	COMMON BORROW. MAY BE OVER OPTIMUM MOISTURE CONTENT.
7PD	LACUSTRINE BOTTOM SEDIMENTS - POORLY DRAINED	EMBANKMENTS OVER 25 FEET HIGH PROBABLY UNSTABLE. CUTS WILL BE TROUBLESOME.	GENERALLY POOR. PROBLEMS OF FINE GRAINED FLOWING MATERIALS. WILL REQUIRE SLOPE PROTECTION AND FLATTENING FOR STABILITY.	WET, SOFT, FINE-GRAINED MATERIALS. TRAFFICABILITY DIFFICULTIES. CONSIDER UNDER CUT.	COMMON BORROW. MAY BE OVER OPTIMUM MOISTURE CONTENT.
10	RECENT ALLUVIAL DEPOSITS	ABOVE EXPECTED HIGH WATER ELEVATION. EMBANKMENTS OVER 25 FEET HIGH MAY BE UNSTABLE. CUTS NOT ADVISABLE.	WATER PROBLEMS.	NON-UNIFORM. HIGHLY VARIABLE MATERIALS. MAY BE WET.	COMMON BORROW. MAY BE OVER OPTIMUM MOISTURE CONTENT.
10PD	RECENT ALLUVIAL DEPOSITS - POORLY DRAINED	ABOVE EXPECTED HIGH WATER ELEVATION. EMBANKMENTS OVER 25 FEET HIGH MAY BE UNSTABLE. CUTS NOT ADVISABLE.	WATER PROBLEMS.	NON-UNIFORM. HIGHLY VARIABLE MATERIALS. WILL BE WET.	COMMON BORROW. WILL BE OVER OPTIMUM MOISTURE CONTENT.
13	ORGANIC DEPOSITS	ABOVE EXPECTED HIGH WATER ELEVATION. CUTS NOT ADVISABLE	WATER PROBLEMS.	UNSUITABLE MATERIAL MUST BE REMOVED AND REPLACED.	NOT SUITABLE.

GENERAL EARTH ENGINEERING CONSIDERATIONS
RTE. 31 GATES-OGDEN STUDY AREA

MAP SYMBOL	TERRAIN UNIT	HIGHWAY LOCATION	CUTSLOPE CONDITIONS	SUBGRADE CONDITIONS	SOURCE OF MATERIALS
6/1	LACUSTRINE SHORE DEPOSITS OVER DEEP TILL	GRADE SHOULD BE ELEVATED ON FLAT LANDSCAPES.	SEVERE SEEPAGE AND SLOUGHING IN LACUSTRINE VENEER. OCCASIONAL SLOUGHING IN TILL. MAY REQUIRE FLATTENING FOR STABILITY.	VARIABLE DEPTH OF SILTS. SEEPAGE AT TOP OF TILL. POSSIBLE TRAFFICABILITY DIFFICULTIES.	COMMON BORROW. MAY BE OVER OPTIMUM MOISTURE CONTENT.
6/7	LACUSTRINE SHORE DEPOSITS OVER LACUSTRINE BOTTOM SEDIMENTS.	EMBANKMENTS OVER 25 FEET HIGH PROBABLY UNSTABLE. CUTS WILL BE TROUBLESOME.	GENERALLY POOR. PROBLEMS OF FINE GRAINED FLOWING MATERIALS. MAY REQUIRE SLOPE PROTECTION AND FLATTENING FOR STABILITY.	WET, SOFT, FINE GRAINED MATERIALS. POSSIBLE DIFFERENTIAL FROST HEAVING. TRAFFICABILITY DIFFICULTIES.	COMMON BORROW. MAY BE OVER OPTIMUM MOISTURE CONTENT.

BEDROCK GEOLOGY

The bedrock in this part of the state consists of Silurian sedimentary formations which are virtually undeformed except for a regional dip of about 60 feet per mile southward.

The formations exhibited in the project area are: the Clinton Group (Sk) consisting of shales, sandstones, and limestones, the Rochester Shale (Sr) and the Lockport Dolomite (Sl). Due to the regional dip, younger rocks appear southward. Except for the Lockport escarpment, whatever topographic variations exist are the result of glaciation.

Bedrock generally lies within 20' of the surface, the only deeper areas lie beneath the hills. The rock is exposed or very thinly covered in several areas in the eastern and western parts of the project area.

REFERENCES

Davis, James F., et al, 1970, Geologic Map of New York, NYS Museum Map and Chart Series No. 5, Albany.

Hartnagel, C. A., 1907, Geologic map of the Rochester and Ontario Beach Quadrangles, NYS Museum Bull. 409, Albany.

Leggette, R. M., L. O. Gould and B. H. Dollen, 1935, Ground Water Resources of Monroe Co., N. Y., Monroe Co. Regional Planning Bd., Rochester.

Planning Staff of the Monroe Co. Planning Council, 1971, Planning Inventory, Town of Gates, Monroe Co., N. Y.

Planning Staff of the Monroe Co. Planning Council, 1971, Planning Inventory, Town of Gates, Monroe Co., N. Y.

Sk Clinton Group

Sr Rochester Group

Sl Lockport Group

Bedrock 0-2'

● 15 Depth to Bedrock from Selected Well Data in feet

N

0 1000 2000 3000 FT.

CONTOUR INTERVAL 5 FEET

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUREAU OF SOIL MECHANICS

BEDROCK MAP
RTE 31 GATES - OGDEN
STUDY AREA

APPROVED 28 Apr 1977
L. L. Moses

DISTRICT NO 4
COUNTY MONROE
DRAWING NO 4 SM 1794 F

UNCONSOLIDATED AQUIFER SITUATION

Information on unconsolidated aquifers in the project area is extremely limited. It is estimated that over 85 percent of the area is served by public water districts. Of the wells studied in the area only 6 of 102 receive their water from unconsolidated deposits.

This map is based upon an interpretation of the generalized terrain unit map. Whereas no concrete information of the area exists, it should not be considered as official.

REFERENCES

Grossman, I. G. and L. B. Yarger, 1953, Water Resources of the Rochester Area, New York, US Geological Survey Circular 246, Washington.

Hartnagel, C. A., 1907, Geological Map of the Rochester and Ontario Beach Quadrangles, NYS Museum Bull. 409, Albany.

Heffner, R. L. and S. D. Goodman, 1973, Soil Survey of Monroe Co., N.Y., US Dept. of Agriculture Soil Conservation Service, Washington.

Leggette, R. M., L. O. Gould, and B. H. Dollen, 1935, Ground Water Resources of Monroe Co., N. Y., Monroe Co. Regional Planning Board, Rochester.

Planning Staff of the Monroe Co. Planning Council, 1971, Planning Inventory, Town of Gates, Monroe Co., N. Y.

Planning Staff of the Monroe Co. Planning Council, 1971, Planning Inventory, Town of Ogden, Monroe Co., N. Y.

LEGEND

1 LOWEST YIELDS
GENERALLY - GLACIAL TILL, BEDROCK, SILT AND CLAY DEPOSITS

2 INTERMEDIATE YIELDS
GENERALLY - LAYERED SILTS AND SANDS

3 HIGHEST YIELDS
GENERALLY - SANDS AND GRAVELS

N

0 1000 2000 3000 FT

CONTOUR INTERVAL 5 FEET

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUREAU OF SOIL MECHANICS

UNCONSOLIDATED AQUIFER SITUATION MAP
RTE 31 GATES - OGDEN STUDY AREA

APPROVED 28 Apr 1977

DISTRICT NO 4
COUNTY MONROE
DRAWING NO 4 SM 1794 F

CLIMATOLOGICAL DATA

Station: Rochester, New York

Location: 43° 07' Latitude; 77° 40' Longitude
547' Altitude

The climate of the corridor area is the humid continental type. Summers are pleasantly warm. Winters are quite long and cold and have frequent periods of stormy, unsettled weather.

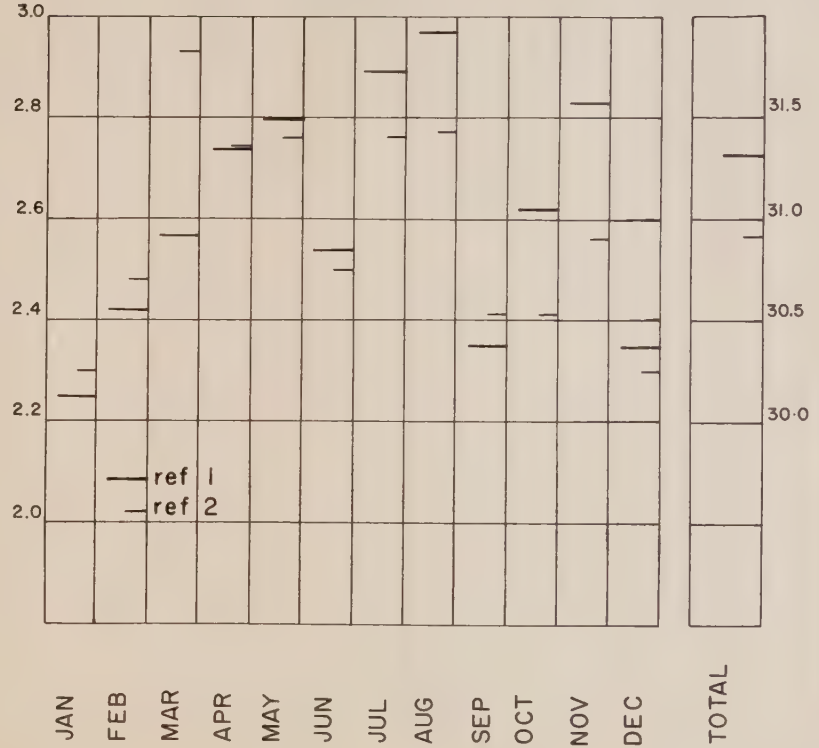
The mean annual precipitation is 31.33 inches, and is rather evenly distributed throughout the year. August is the wettest month with a mean monthly precipitation of 2.97 inches. January is the driest month with a mean monthly precipitation of 2.25 inches. All of the above values are from Reference 1.

Reference 1: New York State Annual Summary 1975, Vol. 87, No. 13, Climatological Data, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Environmental Data Service.

Reference 2: Dethier, Bernard E., Precipitation in New York State, Bul. 1009, Cornell Univ. Agricultural Experiment Station, New York State College of Agriculture, Ithaca, N.Y., 1966.

Notes: Reference 1 normals are climatological normals based on the period 1941-70.

NORMAL PRECIPITATION
(INCHES)



SOIL ENGINEERING CLASSIFICATION

The purpose of the Soil Engineering Classification Map is to present an overview of the project area which delineates those areas which have similar earth engineering characteristics. These groupings are quite broad and are intended to alert the user to the extent of investigation necessary to provide proper soils design information. These groupings are not intended as a recommendation in the choosing of an alignment but rather as an indicator of the intensity of investigation necessary to fully interpret soil conditions.

The map generally indicates the relative amount of exploration and detailed testing necessary to determine the soil conditions for highway design. Use of this map in the early stages of highway planning, to establish a primary boring program will facilitate the selection of an optimum alignment both vertical and horizontal.

REFERENCES

See Generalized Terrain Unit Map

Belcher, D. J., 1948, The engineering significance of landforms, In HRB Bull. 13, pp. 9-29.

MAP UNIT EXPLANATION

Three classes have been made to be depicted on the map.

Class 1) Minimal exploration, testing and analysis necessary for proper soils design. These are deposits in which major earth engineering problems are seldom encountered. The deposits have good bearing capacity, negligible settlement under loading, and generally good cut slope and subgrade characteristics. Included in this category are the glacial till, ice-contact, outwash and bedrock dominated terrain units.

Class 2) Exploration necessary to determine soil profile. Detailed exploration, testing and analysis may be necessary for proper soil design. This intermediate category consists of terrain units in which major earth engineering problems are occasionally encountered. These are "veneer" deposits whose engineering characteristics are influenced by underlying deposits. They usually have fair bearing capacity, some settlement under loading, possible stability problems and may have cutslope and subgrade problems. Included in this category are lacustrine shore deposits, alluvial deposits as well as areas where the activities of man have masked terrain units.

Class 3) Extensive exploration, detailed testing and intensive analysis necessary to provide proper soils design. Deposits in which major earth engineering problems are frequently encountered comprise this category. These deposits consist of fine-grained material which is wet and soft or of organic composition. Foundation conditions are usually poor. Settlement and stability problems must be anticipated. Cutslope and subgrade are usually wet and soft. Organic material must be replaced with suitable material. This grouping includes lacustrine bottom sediments and organic deposits.

LIMITATIONS OF INFORMATION

The Soil Engineering Classification Map is an interpretation of the engineering characteristics of the soils encountered within the project area. The soils were first grouped into terrain units. These units have characteristics of land form and material type which give them general earth engineering features. Several of these units may be grouped as their characteristics are similar enough to be generally the same.

1	MINIMAL EXPLORATION, TESTING AND ANALYSIS NECESSARY FOR PROPER SOIL DESIGN
2	EXPLORATION IS NECESSARY TO DETERMINE SOIL PROFILE. DETAILED EXPLORATION, TESTING AND ANALYSIS MAYBE NECESSARY FOR PROPER SOIL DESIGN
3	EXTENSIVE EXPLORATION, DETAILED TESTING AND ANALYSIS NECESSARY TO PROVIDE PROPER SOIL DESIGN.

N

0 1000 2000 3000 FT.

CONTOUR INTERVAL 5 FEET

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUREAU OF SOIL MECHANICS

SOIL ENGINEERING CLASSIFICATION MAP RTE 31 GATES - OGDEN STUDY AREA

APPROVED 28 Apr 1977
DIRECTOR

DISTRICT NO 4
COUNTY MONROE
DRAWING NO 4 SM 179

SOIL ERODIBILITY RATING MAP

The purpose of the soil erodibility rating map is to present an overview of the project area which delineates those soils having similar erodibility characteristics. Erodibility is a measure of the relative ease by which soil particles may be detached from the soil mass. The soil erodibility factor (K) is a quantitative value experimentally determined and is a function of grain size distribution of texture, permeability, organic content and soil structure (Wischmeier, 1971). These factors have been determined by the U.S. Department of Agriculture's Agricultural Research Service and Soil Conservation Service.

Erodibility Ratings used for this mapping represent groupings of the erodibility factors into four relative severities. These represent the relative erodibility of either the parent material or in the case of some shallow-to-rock soils the lowest soil material. In some soils there may be a significant difference between the erodibility ratings for the topsoil layer and the lower material. The values utilized in arriving at the depicted ratings are from the Erosion and Sediment Inventory Handbook.

Erosion differs from erodibility in that it is a function of erodibility, slope length, slope gradient, vegetative cover and the energy of the rainfall. Assuming all these factors remain equal, the delineations on the map will show relative erosion from overland runoff (sheet erosion).

REFERENCES

Wischmeier, W. H., C. B. Johnson and B. V. Cross, 1971, A soil Erodibility Nomograph for Farmland and Construction Sites. Jour. Soil and Water Cons., Vol. 26, No. 5, pp 189-193.

Wischmeier, W. H. and L. D. Meyer, 1973, Soil Erodibility on Construction Areas. In H.R.B. Special Report 135, pp. 20-29.

Soil Conservation Service, U.S. Dept. of Agriculture, Erosion and Sediment Inventory Handbook, Syracuse, 1972.

MAP UNIT EXPLANATION

Explanation of Erodibility Factor K

The computations for K values are made on the basis of soil property data. Five soil parameters are necessary to determine the erodibility factor: percent silt plus very fine sand, percent sand greater than 0.10 mm, organic matter content, structure and permeability.

Adjustments are made to the computed K value for soil particles larger than 2 mm. Further adjustments are made according to standard values namely 0.10; 0.17; 0.20; 0.24; 0.28; 0.32; 0.37; 0.43; 0.49; 0.55; 0.64; 0.72, and 0.78.

These are then grouped into four classes each comprising a certain range. A norm is then designed for each class. The grouping associated with each map unit is as follows:

Erodibility Classes of K Values

	Rating	Range	Norm
1	slight	0.10-0.20	0.17
2	moderate	0.24-0.32	0.28
3	high	0.37-0.49	0.43
4	very high	0.55-0.78	0.64

1 SLIGHT
2 MODERATE
3 HIGH
4 VERY HIGH
RO ROCK OUTCROP
MS MUCK

N

0 1000 2000 3000 FT
CONTOUR INTERVAL 5 FEET

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUREAU OF SOIL MECHANICS

SOIL ERODIBILITY MAP
RTE 31 GATES - OGDEN
STUDY AREA

APPROVED 28 Apr 1977
DISTRICT NO 4
COUNTY MONROE
DRAWING NO 4 SM1794H

SOIL RUNOFF FACTOR

The purpose of the Soil Runoff Factor Map is to present an overview of the project area which delineates those soils which have similar physical characteristics affecting the rainfall-runoff relation. The Runoff Factor is a relative indication of how much rain enters the soil. The characteristics of the soil, the rate and volume of rainfall and the season of the year all determine the amount of water taken in by the soil. The soil runoff grouping combines soils of the same runoff potential or same retention capacity, providing other conditions are the same. The total process concerns the results of retention and detention. Basically retention influences runoff volume and detention influences time distribution of runoff volume. The infiltration capacity of a soil after prolonged wetting is taken as the index of the runoff potential of the soil.

Four major groups are used in the mapping. Factors considered in this selection are soil texture, soil structure, drainage class, soil depth and bedrock structure. If all conditions were equal the runoff volume would directly reflect the above rating. Dual groupings are given for certain wet soils that can be adequately drained. The first letter applies to the drained condition, and the second letter to the undrained condition.

Surface conditions such as tillage and soil cover complexes affect infiltration. Organic content is also correlated with infiltration. The mapped area includes portions of made land and quarried land. These areas would be highly variable. Also it must be concluded that any urbanization would alter the natural classification.

The mapping is based on file data and field maps prepared by Soil Conservation Service locally and from the Syracuse office.

REFERENCES

Chiang, Sie Ling, 1971, A runoff potential rating table for soils, Jour. Hydrology, Vol. 13, pp 54-62.

Musgrave, G.W., 1955, How much rain enters the soil? In Water: The yearbook of agriculture, Washington.

MAP UNIT EXPLANATION

1. Low Runoff (High Infiltration Potential) soils having high infiltration rates even when thoroughly wetted and consisting chiefly of deep, well to excessively drained sands or gravels. These soils have a high rate of water transmission.

2. Moderate Runoff soils having moderate infiltration rates when thoroughly wetted and consisting chiefly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission.

3. High Runoff soils having slow infiltration rates when thoroughly wetted and consisting chiefly of soils with a layer that impedes downward movement of water, or soils with a moderately fine to fine texture. These soils have a slow rate of water transmission.

4. Very High Runoff (Very Slow Infiltration Potential) soils having very slow infiltration rates when thoroughly wetted and consisting chiefly of clay soils, soils with a permanent high water table, soils with a clay pan or clay layer at or near the surface, and shallow soils over nearly impervious materials. These soils have a very slow rate of water transmission.

1 LOW
2 MODERATE
3 MODERATELY HIGH
4 HIGH
PU PITS AND QUARRIES

DUAL CLASSIFICATIONS REFER TO DRAINABLE LANDS

N

0 1000 2000 3000 FT

CONTOUR INTERVAL 5 FEET

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUREAU OF SOIL MECHANICS

SOIL RUNOFF FACTOR MAP
RTE 31 GATES - OGDEN STUDY AREA

APPROVED 28 Apr. 1977
DIRECTOR

DISTRICT NO 4
COUNTY MONROE
DRAWING NO 4 SM1794

WETNESS AND PONDING MAP

The purpose of the wetness and ponding map is to present an overview of the project area which delineates those areas of similar drainage class and apparent water table levels. This delineation gives an indication of the degree of wetness of the soil. The wetness of the soil refers to the depth and length of time free water is encountered in the soil. The closer the water table is to the surface over a longer period of time, the wetter the soil will be. Ponding is an indication of wetness and is caused by slow removal of existing or additional water. The location of depths of the water table reflect normal climatic conditions and may be affected somewhat by improvements or impediments placed on the land. The wetness of a soil creates a significant use limitation and must be dealt with for design and construction purposes.

Water table depths refer to both true and perched water table levels. Normally the true water table will slowly subside during the seasonally dry times before rising at the advent of a wet period. Perched water tables are commonly associated with the glacial till soils. In the thin soils the water table generally is controlled by, and lies within, the bedrock. These soils are usually well drained.

MAP UNIT EXPLANATION

Three divisions have been made to be depicted on the map.

1) Areas that are not seasonally wet for a significant period of time. In these deposits free water is removed rather rapidly from the soil. Normally a water table will be at 1 to 3 foot depths for less than 3 days and will occur within 6 foot depths for less than 1 week during seasonably wet times.

2) Areas seasonally wet for relatively short but significant periods. In these deposits free water remains at depths of 1 to 3 feet for a period of 3 days to 3 weeks and within 6 feet for periods of 1 to 6 weeks during seasonably wet times.

3) Areas subject to ponding or remaining seasonally wet for prolonged periods. In these deposits free water remains within 1 to 3 feet of the surface for periods of 3 to 12 weeks and within 6 foot depths for periods ranging from 6 weeks to longer. The wetter portions of these areas remain permanently saturated unless artificially drained.

REFERENCES

See Unconsolidated Aquifer Situation Map.

Fritton, Daniel D. and Gerald W. Olson, 1972, Depth to the apparent water table in 17 New York soils from 1963 to 1970, New York's Food and Life Sciences Bull. No. 13, Cornell Univ., Ithaca.

Latshaw, Gerald J. and Robert F. Thompson, 1968, Water Table study verifies soil interpretations, Jour. of Soil and Water Cons., Vol. 26, No. 2, pp 65-67.

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUREAU OF SOIL MECHANICS

SOIL WETNESS AND PONDING
RTE 31 GATES - OGDEN STUDY AREA

APPROVED 28 Apr 1977
DIRECTOR

DISTRICT NO 4
COUNTY MONROE
DRAWING NO. 4 SM 1794 P

SOIL CAPABILITY CLASS

Capability grouping shows, in a general way, the suitability of soils for most kinds of field crops. The soils are grouped according to their limitations when used for field crops, the risk of damage when they are used, and the way they respond to treatment. The grouping does not take into account major land forming that would change slope etc., possible but unlikely reclamation projects and does not apply to rice, cranberries or other crops requiring special management.

These soils are grouped by the U.S. Department of Agriculture, Soil Conservation Service. Those familiar with the capability classification can infer from it much about the behavior of soils when used for other purposes, but this classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for range, for forest trees or engineering.

REFERENCES

Haffner, R.L. and S.D. Goodman, 1973, Soil Survey of Monroe Co., N.Y., U.S. Dept. of Agriculture Soil Conservation Service, Washington.

MAP UNIT EXPLANATION

1. Soils have few limitations that restrict their use.
2. Soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.
3. Soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.
4. Soils have very severe limitations that reduce the choice of plants, require very careful management, or both.
5. Soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture, woodland or wildlife habitat.

Ro Rock outcrop
Pu Pits and quarries
Mb Made land

1	FEW LIMITATIONS
2	MODERATE LIMITATIONS FOR AGRICULTURE
3	SEVERE LIMITATIONS FOR AGRICULTURE
4	VERY SEVERE LIMITATIONS FOR AGRICULTURE
5	VERY SEVERE LIMITATIONS RESTRICTING USE TO PASTURE, WOODLAND AND WILDLIFE HABITAT
RO	ROCK OUTCROP
PU	PITS AND QUARRIES
Mb	MADE LAND
FW	FRESH WATER MARSH

N

0 1000 2000 3000 FT.

CONTOUR INTERVAL 5 FEET

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUREAU OF SOIL MECHANICS

SOIL CAPABILITY CLASS
RTE 31 GATES - OGDEN
STUDY AREA

APPROVED 28Apr 1977

DISTRICT NO 4
COUNTY MONROE
DRAWING NO. 4 SM 1794 L

FLOOD PLAIN MAP

The purpose of the Flood Plain Map is to depict potential flood hazard areas. The mapping is based on information supplied by the United States Department of Housing and Urban Development for use in the federal flood insurance program.

All streams have some flood hazard potential, however the scale of the present mapping and extent of available information limit the detail of the presentation.

The areas indicated are classified as Zone "A" by the Department of Housing and Urban Development, which means they are special flood hazard areas.

REFERENCES

Department of Housing and Urban Development, Federal Insurance Administration:

Community Number	Date	Map Name
360416	11/5/76	Town of Gates
360424A	12/28/73	Town of Ogden

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUREAU OF SOIL MECHANICS

FLOOD PLAIN MAP
RTE 31 GATES - OGDEN
STUDY AREA

APPROVED 28 Apr 1977
E. P. Moore

DISTRICT NO 4
COUNTY MONROE
DRAWING NO 4 SM 1794

STREAM CLASSIFICATION AND WATERSHED MAP

The purpose of the stream classification and watershed map is twofold. It presents an overview of the project area indicating the watersheds and the general areal water flow characteristics. The map also delineates various water courses and indicates the stream classifications as determined by Classifications and Standards Governing the Quality and Purity of Waters of New York State. The project area is contained within two major watershed areas noted on the mapping; #252 Black, Paddy Hill Creeks Watershed and #254 Lower Genesee River Watershed. These watersheds are those delineated in Reference 1 and coincide with the Small Watersheds of New York utilizing criteria of Public Law 566 (United States Watershed Protection and Flood Control Act of 1954). The standard 7.5 minute topographic map produced by the U.S. Geological Survey was utilized to establish the areal extent of the drainage areas of individual streams within the project area. The delineation of the drainage areas was by personnel of the Soil Mechanics Bureau.

The water courses mapped are both intermittant and perennial. Stream classification and standards are described in detail in Parts 700, 701 and 702, Title 6, official compilation of Codes, Rules and Regulations. The mapped area includes only one class of quality and purity of waters. All streams in the project area are designated as a D classification.

The streams in the project area may meet higher standards than those listed for their assigned classification. The prime objective regarding water quality and highway construction is to insure that stream quality is maintained equal to or better than before introduction of the facility.

REFERENCES

Erosion and Sediment Inventory, SCS, Syracuse, N.Y., 1974.

NYS Dept. of Environmental Conservation, open-file data.

Planning Staff of the Monroe Co. Planning Council, 1971, Planning Inventory, Town of Gates, Monroe Co., N.Y.

Planning Staff of the Monroe Co. Planning Council, 1971, Planning Inventory, Town of Ogden, Monroe Co., N.Y.

MAP UNIT EXPLANATION

The watershed areas are identified by the watershed numbers which are as follows:

#252 - Black - Paddy Hill Creeks
#254 - Lower Genesee River

The designated class is identified by best usage fresh water as follows:

D. These waters are suitable for secondary contact recreation but due to such natural conditions as intermittency of flow, water conditions not conducive to propagation of game fishery or stream bed conditions, the water will not support the propagation of fish. The waters must be suitable for fish survival.

LEGEND

WATERSHED BOUNDARY (PL-566 SIZE

PERENNIAL STREAM

INTERMITTANT STREAM

ALL STREAMS IN AREA ARE CLASS "D"

N

0 1000 2000 3000 FT

CONTOUR INTERVAL 5 FEET

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUREAU OF SOIL MECHANICS

STREAM CLASSIFICATION AND WATERSHED MAP
RTE 31 GATES - OGDEN
STUDY AREA

APPROVED 28 Apr 1977
E. Watrous

DISTRICT NO 4
COUNTY MONROE
DRAWING NO 4 SM 1794N

WETLAND FOOD AND COVER MAP

The purpose of the Wetland Food and Cover Map is to present an overview of the project area which delineates those areas which combine suitable soil and water conditions for the natural production of food and cover plants favorable to wetland wildlife. These soils which support the habitat elements for wetland wildlife are generally too wet for cultivation.

The well suited areas may be associated with shallow water and generally produce sufficient food and cover to propagate wetland wildlife. There are three classes of wildlife: open land, woodland and wetland. Wetland wildlife are described as birds and mammals that normally make their homes in wet areas such as ponds, marshes and swamps. Examples: ducks, geese, rails, herons, shore birds, mink, muskrat and beaver.

The ratings used in this presentation were obtained from Soil Conservation Service ratings for specific soil series established in published manuals.

Note: This map may be utilized in place of DEC Official Freshwater Wetlands Maps if unavailable but should not be considered as official.

REFERENCES

Heffner, R. L. and S. D. Goodman, 1973, Soil Survey of Monroe Co., N. Y., U.S. Dept. of Agriculture Soil Conservation Service, Washington.

MAP UNIT EXPLANATION

The rating criteria is based on suitability of the area for growth of annual and perennial wild herbaceous plants in moist to wet sites that produce food or cover that is extensively and dominantly used by wetland forms of wildlife. The four divisions depicted on the map are as follows:

1. Well suited: Soil conditions suitable for growth of a wide variety of climatically adapted species, particularly food-producing annual plants.

2. Moderately suited: Soil conditions suitable for a wide variety of species, particularly perennials.

3. Poorly suited: Soil conditions that tend to produce dominant stands of a few vigorous perennial species, which generally are of low value as food producers.

4. Not suited: Soil conditions under which wetland plants do not grow or are so sparce as to be of no significance to wildlife.

1 WELL SUITED
2 MODERATELY SUITED
3 POORLY SUITED
4 NOT SUITED
ML MADE LAND

N

0 1000 2000 3000 FT.
CONTOUR INTERVAL 5 FEET

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUREAU OF SOIL MECHANICS

WETLAND FOOD AND COVER MAP
RTE 31 GATES - OGDEN STUDY AREA

APPROVED 28 Apr 1977	DISTRICT NO 4
L. H. Moore	COUNTY MONROE
DIRECTOR	DRAWING NO. 4 SM 1794 P

00998
LRI